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| APPLICATION NO: | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 08/993,104 | 12/18/97 | ROSENBERG | S 42390.P5271 |

ALOYSIUS T C AUYEUNG
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12TH FLOOR
12400 WILSHIRE BOULEVARD
LOS ANGELES CA 90025-1206

LM02/0802

EXAMINER

NGUYEN, F

ART UNIT

PAPER NUMBER

2774

DATE MAILED:

08/02/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

| | |
|-------------------------------|--|
| Application No. 08/993,104 | Applicant(s) SCOTT ROSENBERG ET AL. |
| Examiner FRANCIS NGUYEN | Group Art Unit 2774 |



Responsive to communication(s) filed on _____.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-25 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-25 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on Mar 22, 1999 is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Drawings

1. **Figures 4 and 7** of formal drawings filed on 3/22/99 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Objections

2. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
3. **Claim 15** recites limitation “ further comprising a liquid crystal cell ”(page 11, lines 1-2) which does not further limit method claim 14.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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6. **Claim 1** recites the limitation “ first circuit configuration to substantially simultaneously and asynchronously drive respective positive and negative voltage signals ”(page 10, lines 2-3) ; the terms “substantially simultaneously and asynchronously ” and “ substantially predetermined rate ”(page 10, line 6) render the claim vague and indefinite.
7. **Claim 9** recites the limitation “ first circuit configuration to substantially simultaneously and asynchronously drive respective positive and negative voltage signals ” (page 10, lines 4-5) ; the terms “ substantially simultaneously and asynchronously ” and “ substantially predetermined rate ”(page 10, line 8) render the claim vague and indefinite.
8. **Claim 14** recites the limitation “ applying respective voltage signals to respective voltage signal storage elements substantially simultaneously and asynchronously, sampling the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate” (page 11, lines 2-5) ; the terms “substantially simultaneously and asynchronously” and “substantially predetermined rate” render the claim vague and indefinite.
9. **Claim 18** recites the limitation “ first circuit to substantially simultaneously and asynchronously drive respective positive and negative voltage signals ”(page 11, lines 2-3) ; the term “substantially simultaneously and asynchronously ” renders the claim vague and indefinite.
10. **Claim 20** recites the limitation “ second circuit is adapted to sample the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate” (page 11, lines 2-3) ; the term “substantially predetermined rate” renders the claim vague and indefinite.

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11. **Claim 21** recites the limitation “so as to substantially maintain a substantially DC bias”(page 12, lines 2-3) which renders the claim vague and indefinite.

12. **Claim 22** recites the limitation “ applying respective voltage signals to respective voltage signal elements substantially simultaneously and asynchronously, and sampling the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate” (page 12, lines 2-5) ; the terms “substantially simultaneously and asynchronously” and “substantially predetermined rate” render the claim vague and indefinite.

13. **Claim 23** recites the limitation “so as to substantially maintain a substantially DC bias”(page 12, line 2) which renders the claim vague and indefinite.

14. **Claim 24** recites the limitation “ first circuit configuration to substantially simultaneously and asynchronously drive respective positive and negative voltage signals ..., and a second circuit configuration to sample the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate” (page 11, lines 4-8) ; the term “substantially simultaneously and asynchronously” and “substantially predetermined rate” render the claim vague and indefinite.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1 through 25 are rejected under 35 U.S.C. 103(a) as being obvious over Takahara et al. (U.S. Patent 5,436,635) in view of Shields (U.S. Patent 4,870,396).

17. As to **claims 1, 9, 14, 15, 18, 22, 24**, Takahara et al. discloses a circuit and associated method for modulating voltage signals comprising a first circuit configuration (phase division circuit 42, source drive IC 11/12, figure 2) to drive positive and negative voltage signals (V(P) and V(M), figure 3), and a second circuit configuration (**TFT as switching elements** for writing signal to pixel electrodes, column 6, lines 63-64, column 19, lines 36-38), changeover circuits 121/122 in figure 11, column 19, lines 55-65, column 20, lines 52-63) to alternatively sample the respective voltage signals at a substantially predetermined rate. However, Takahara et al. fails to expressly teach voltage signal storage elements. Shields teaches voltage signal storage elements (storage capacitors 24, figure 4, column 2, lines 58-63) . It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the apparatus of Takahara et al., then add a voltage signal storage element to each pixel cell , as taught by Shields, to obtain the combined apparatus Takahara et al.-Shields because it would provide a sample and hold circuit, as taught by Shields(column 2, lines 58-60), and facilitate storage of video signal.

18. As to **claims 2, 3, 4, 5, 10, 11, 12, 13, 16 and 25**, Takahara et al.-Shields further teaches liquid crystal cell (see Shields, **liquid crystal cell LC in figure 4**), **circuitry to address said liquid crystal cell** (see Shields, **transistor 22, figure 4**), additional drive signals(see Takahara et al.,

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transistors Tm11/Tm12/... in figure 1). One skilled in the art would know how to sample at a substantially predetermined rate as related to a particular liquid crystal material.

19. As to **claims 6, 7, 8 and 17**, Takahara et al.-Shields further teaches a plurality of transistors (see Shields, transistors 22 and 62 in figure 4) coupled to electrically isolate said voltage signal storage elements from said liquid crystal cell, and embodiment on an integrated circuit chip(see Takahara et al., column 13, lines 23-35).

20. As to **claims 19, 20, 21 and 23**, Takahara et al.-Shields teaches voltage signals comprising respective positive and negative voltage signals (see Takahara et al. , source drive IC (P) and source drive IC (M), figure 1), voltage sampling at a substantially predetermined rate (Shields, synchronous line-at-a-time loading, column 3, lines 12-19), voltage sampling so as to substantially maintain a substantially DC bias (Shields, AC activated displays , column 1, lines 36-39, applied RMS voltage across liquid crystal LC column 4, lines 10-11) . It would be obvious to a person of ordinary skill in the art to arrange two respective voltage signal storage elements to accommodate respective positive and negative voltage signals because it would enable efficient storage of both voltage signals.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,349,366 Yamazaki et al.

The reference Yamazaki et al. is made of record as it discloses an active matrix electro-optical device using a ferroelectric element for voltage signal storage element.

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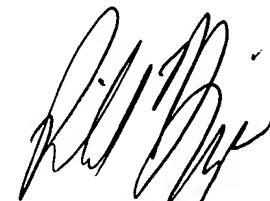
22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis Nguyen whose telephone number is (703) 308-8858. The examiner can normally be reached on weekdays from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709. The fax phone number for this Group is (703) 308-9051.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.


Francis Nguyen

July 26th, 1999



RICHARD A. HJERPE
SUPERVISORY PATENT EXAMINER
GROUP 2700